920673-907251

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of	:	**Cian E. O'Meara**
Serial No.	:	**09/740,201**
Filed	:	**December 18, 2000**
For	:	**Allocation Of Location-Based Orders To Mobile Agents**
Examiner	:	**Andre D. Boyce**
Art Unit	:	**3623**
Customer No.	:	**23644**

AMENDED BRIEF ON APPEAL

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is from the Examiner's final Office Action dated June 6, 2006 in which claims 1-36 of this application were finally rejected. A Notice of Appeal, with appropriate extension of time was filed October 6, 2006. This amendment is filed in view of the notification of March 9, 2007.

The fee of $500.00 pursuant to 37 C.F.R. §41.20(b)(2) for this brief was deducted from Deposit Account No. 12-0913.

(i) REAL PARTY IN INTEREST

The Assignee, Nortel Networks Limited, is the real party in interest in the pending appeal.

(ii) RELATED APPEALS AND INTERFERENCES

Applicants are unaware of any other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(iii) STATUS OF CLAIMS

Claims 1-36 are pending in the Application, are finally rejected, and are the claims that are being appealed.

Claims 1-36 are set forth in the Claims Appendix.

(iv) STATUS OF AMENDMENTS

No claim amendments have been filed subsequent to the final rejection dated June 6, 2006, simply a Response of July 31, 2006 arguing against the final rejection. The Response was entered.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

The invention is used in the field of allocating location-based orders to mobile agents, for example assigning taxicab pick-up orders to taxicab drivers, or allocating repair calls to homes of electricity users among the company's repair technicians, or allocating sales calls to travelling sales agents.

Claim 1

Briefly, the method of claim 1 relies on two information sources which it maintains regarding the agents and their availability. The first is a "current order record" and the second is a "prioritized listing of locations".

The current order record notes the location and time at which each agent is expected to become free. This is described at page 12, lines 21-29; page 13, lines 23-

25; and page 16, lines 14-29, and shown in Figs. 2A, 2B and 6.

The "prioritized listing of locations" is critical to the invention, and to the issues of patentability on which the claims stand rejected. Each agent's prioritized listing (these listings can be maintained separately or combined) ranks the various locations in the area being served, locations being ranked according to when that agent can be expected to reach the location after becoming free. Crucially, the prioritized listing for an agent includes both the locations which that agent is due to visit and those locations which the agent is not due to visit. Prioritized listings are described particularly from page 15, line 10 to page 16, line 6 and shown in Figs. 5A and 5B.

When a new order is received in respect of a particular location, there is no requirement to perform a schedule calculation in respect of each agent. Instead, the existence of the prioritised listing allows that location to be looked up directly in respect of each agent's availability to reach the location, so as to find the agent who is most readily available for that new order.

Claim 4

Dependent claim 4 is directed to the feature of maintaining for each agent an individual prioritized location listing relating only to that agent, as shown in the "skillset files" of Figs. 5A, and 5B, and as described from page 15, line 6 to page 16, line 12, and more particularly at page 16, lines 4-6 which states that each taxi has its own skillset file.

Claim 5

Dependent claim 5 is directed to a combined prioritized location listing relating to a plurality of agents, with each location being prioritized for one or more agents according to ability of each agent to reach each location, as described from page 3, line 22 to page 4, line 8.

Claim 7

Dependent claim 7 is directed to the feature that the allocation of the order occurs by offering the order to the agent, and receiving confirmation of acceptance of

the order from the agent, as described at page 16, lines 12-15, and page 26, lines 20-23.

Claim 9

Dependent claim 9 is directed to the feature of the listing of locations identifying the priority of each location with a time at which the agent is expected to be able to reach said location. This is shown in Figs. 5A and 5B and described at page 15, lines 22-30.

Claim 10

Dependent claim 10 is directed to the feature of the listing of locations identifying the priority of each location with a priority identifier calculated from distance between each such location and said first location, and time between the current time and said first time, as described at page 5, lines 12-15 and 25, lines 5-8.

Claim 11

Dependent claim 11 is directed to the distance in claim 10 being a geographic distance, as described at page 5, line 21.

Claim 12

Dependent claim 12 is directed to the distance in claim 10 being calculated in a non-linear representation of an area including said locations, as described from page 5, line 22 to page 6, line 6.

Claim 13

Dependent claim 13 is directed to the representation in claim 12 being selected from a grid of cells to which locations are mapped, a set of groups of locations, and a mesh of elements to which locations are mapped, as described at page 6, lines 7-12.

Claim 21

Dependent claim 21 is directed to the maintenance of the current order record including providing an agent with access to the current order record to edit the details of the record. This is described at page 13, lines 8-13.

Claim 23

Independent claim 23 relates to a method of operating an ordering server (shown in Fig. 7, and described from page 18, line 29 to page 19, line 3, from page 23, line 13 to page 24, line 20, and at page 28, lines 9-25) for controlling location-based orders for a plurality of mobile agents, i.e. the maintenance and updating of the current order record and prioritized listing of locations as alluded to above.

Claim 24

Independent claim 24 is effectively an apparatus claim equivalent to method claim 1, and covers an ordering server for allocating location-based orders to a plurality of mobile agents associated with said server. The above discussion of claim 1 applies equally here.

Claim 29

Dependent claim 29 is directed to the ordering server including an agent interface for an agent to access and edit the current orders file. This is described at page 9, lines 3-5 and page 13, lines 8-13.

Claim 30

Independent claim 30 is a claim to a data structure of functional descriptive material, namely an agent profile comprising the current order record (examples of which are described at page 12, lines 21-29; page 13, lines 23-25; and page 16, lines 14-29, and shown in Figs. 2A, 2B and 6), and the prioritized listing of locations for a single agent (described from page 15, line 10 to page 16, line 6 and shown in Figs. 5A and 5B).

Claim 34

Dependent claim 34 is directed to the feature of the prioritized locations listing relating to a single agent only, as shown in the "skillset files" of Figs. 5A, and 5B, and as described from page 15, line 6 to page 16, line 12, and more particularly at page 16, lines 4-6 which states that each taxi has its own skillset file.

Claim 35

Independent claim 35 is a claim to a computer program product generally equivalent to the method of claim 1. Reference is made to the above discussion of claim 1, which applies equally here.

Claim 36

Independent claim 36 is a claim to a communications network which includes an ordering server defined identically to the server of claim 24, and reference is made to the above discussion of claim 24 (and therefore claim 1), which applies equally here.

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are 3 grounds of rejection to be reviewed:

1) Whether claims 1-17, 22-25, 27 and 30-36 are unpatentable under 35 U.S.C. 103 over Powell et al. (US 2002/0065700) in view of Kocur (US 5,913,201).

2) Whether claims 18-20, 26 and 28 are unpatentable under 35 U.S.C. 103 over Powell et al. in view of Kocur, in further view of Sisley et al (US 5,943,652).

3) Whether claims 21 and 29 are unpatentable under 35 U.S.C. 103 over Powell et al. in view of Kocur, in further view of Ditcharo et al (US 6,587,851).

(vii) ARGUMENT

1) Rejection under 35 U.S.C. 103 over Powell et al. in view of Kocur

Claims 1-3, 6, 8, 14-17, 22-25, 27, 30-33, 35 and 36

Brief summary of prior art references

For the benefit of the Board, a brief summary of the Powell and Kocur disclosures may place their relevance to the present invention in context as they would each appear to the person skilled in the art.

Powell

Powell, like the present invention, is concerned with assigning orders to a mobile workforce. Powell distinguishes between what are termed "service assignments" and "pooled assignments". Service assignments are calls to customers which are generally required to be completed that same day. Pooled assignments are maintenance tasks which the workforce as a whole must complete and which have priorities and due dates without normally being as time critical as the customer service assignments.

Powell teaches that the service assignments are placed in a service queue and from this, the individual worker schedules are filled at the start of the day. Then pooled assignments are inserted into the workers' schedules as and when slack periods exist within the working day.

The relevance of geographic information to the Powell system is that worker locations and pooled assignments are each assigned to geographical blocks. When a pooled assignment is being assigned, it is given normally to a worker who is located in that same geographical block, or if no such worker is available, the search is expanded out to neighbouring blocks until a worker is found whose schedule has a slack period.

Kocur

Kocur is similarly concerned with assigning work projects to a workforce, with the aim of optimising efficiency and automating a complex task in a computationally efficient manner. As such, the Kocur disclosure is technically complex.

Kocur breaks down the overall task of assigning work projects into the following steps:

i) establishing that the workforce as a whole can complete the forecasted amount of work;

ii) assigning actual work projects to available workers with the skills to complete the projects, so as to determine what projects can actually be completed in the day;

iii) clustering the projects which can be completed around each worker's work location, resulting in a trial assignment of projects for each worker;

iv) optimizing each worker's assigned projects (if each worker has eight projects assigned, and if travel times are taken into account, then by swapping all possible pairs of projects an optimal route can be found by trial and error); and

v) if the resulting routes lead to an appointment or commitment being missed, then a local improvement step considers whether swapping projects between workers will improve matters.

Detailed analysis of Powell's shortcomings as a reference

Powell was alleged to disclose "maintaining a prioritized listing of locations including both scheduled locations which an agent is due to visit and unscheduled locations which said agent in not currently due to visit". The Examiner found this alleged teaching in the pooled queue 20 of pooled work orders.

The pooled queue 20 of Powell is simply a list of pooled work orders. It is not prioritized in the sense that claim 1 requires, and it does not include a listing of scheduled locations which an agent is due to visit and unscheduled locations which that agent is not currently due to visit.

The pooled queue of work orders may consist of orders in locations which no agent is scheduled to work, in which case it will lack a listing of "scheduled locations" as claim 1 requires. It may also include only orders which are in a location due to be visited by each agent, such as a major task at the company headquarters, in which case it does not include any listing of "unscheduled locations which said agent is not currently due to visit". Accordingly, there is no teaching in Powell of the required prioritized listing.

Apart from the failure to teach any prioritized listing of both scheduled and unscheduled locations for an individual agent (i.e. the point in dispute in the preceding paragraphs), it is clear from the final rejection itself that the Examiner was prepared to acknowledge that Powell is deficient in several very significant respects.

The Examiner acknowledged in the final rejection that:

"Powell et al does not explicitly disclose

- *locations in said listing being prioritized*
- *to rank both the scheduled and unscheduled locations for said agent*
- *according to the availability of the agent to reach said location after said first time*
- *said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing"*

This acknowledgement of what is lacking from Powell is quoted directly from the final rejection, but the statement has been broken down to itemize all of the points which the Examiner could not find in Powell.

Features of the claimed invention not alleged present in either reference

The Examiner conceded, when summarizing Powell's disclosure (see the passage quoted above), that Powell failed to disclose the prioritization of a listing "according to the availability of the agent to reach said location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing."

One would have assumed therefore, that the rejection of claim 1 would then go on to show where these features might be found within the remaining prior art. However, when discussing Kocur (the only other reference relied on against claim 1) no further mention was made of these features, which means that the argumentation underlying the rejection is incomplete and defective at best.

There was no suggestion or even any implication from the Examiner that Kocur might disclose calculating the availability of a given agent to reach locations irrespective of whether or not that agent was due to visit such a location. For completeness, it is pointed out that Kocur only discusses preparing and optimizing schedules for the locations which agents are due to visit. Therefore, the calculation of

availability of an agent to reach a location not on his or her schedule would be entirely redundant in the Kocur method, since Kocur makes no use of any unscheduled locations in any of the steps disclosed, as will become apparent from the discussion below.

Detailed analysis of Kocur's further shortcomings as a reference

The statement of features lacking from Powell should be contrasted it with what Kocur was alleged to disclose (again quoting from the final rejection):

> *"Kocur discloses an initial route (i.e. scheduled locations) created for each worker based utilizing a distance and travel time minimizing technique (column 12, lines 31-37),"*

So, firstly, it is found that Kocur discloses an ordered route, i.e. a listing of scheduled locations (in fact it is a listing of scheduled work-projects, but this is not of great importance). This clearly does not include any unscheduled locations, being by definition a schedule for that worker.

> *which results in ordering the work-projects in deadline order (i.e. rank order of importance),*

The Examiner then notes that this equates to or results in the scheduled work-projects being ranked in order of the deadline by when they have to be completed. At this juncture it is noted that (1) the claims under appeal are silent as to ranking orders by deadline (i.e. the ordering made by Kocur is of no relevance to the claimed invention), and (2) crucially, Kocur is silent as to ranking locations by an individual agent's availability to reach each location once free to do so.

> *wherein all pairs of work-projects in the route are then swapped and examined for improvements, i.e., both scheduled and unscheduled locations are examined and ranked to determine improvement (column 15, lines 9-17).*

Finally, the Examiner concludes that since all pairs of scheduled work-projects in a worker's route are swapped and examined, then this means that both scheduled and unscheduled locations are examined for improvement. The logic of this reasoning cannot be followed, and an example will be given to demonstrate how Kocur processes the route or schedule of (scheduled) work projects.

At this point, it should be noted that the analysis of Kocur's disclosure concludes, i.e. the three italicised snippets quoted in this section of argument are the entirety of the allegation concerning Kocur's teaching. Once again Applicants note the lack of any suggestion from the Examiner that there is some calculation of the availability of an agent to reach locations irrespective of whether the agent is actually due to visit each such location.

Simple example of Kocur's pair swapping method

It is true that Kocur makes an initial route proposal for each worker, and the Examiner has given great weight to this part of Kocur's process. This initial route proposal is considered as an ordered list of scheduled locations. Kocur then carries out a pair-swap process to optimise the route. The following example illustrates the concept of this step, and the Board is requested to overlook the over-simplification.

Assume that a person has to visit Los Angeles, New York , Atlantic City, and San Francisco, but not necessarily in that order. A random routing created by computer using the abbreviations LA, NY, AC and SF might suggest the route: NY-SF-AC-LA. By associating travel times with each pairing e.g. 6 hours to fly from either between either of the east coast cities (NY or AC) and either of the west coast cities (LA or SF), and 1 hour to fly between NY and AC or between LA and SF, it can be seen that the initial route proposed will take 18 hours.

If one were to swap the first two cities, resulting in the route SF-NY-AC-LA, one would reduce the journey time to 13 hours. If one then swapped the second and third cities to give SF-AC-NY-LA no improvement would result. However, by continuing to swap pairs of cities, one would quickly arrive at one of the optimum routes, such as SF-LA-NY-AC or AC-NY-SF-LA, each of which reduces the journey time to 8 hours. By swapping all such pairs of cities in a structured manner, one can guarantee that the best route will be found, particularly for more complex routing problems.

Kocur proposes just such a pair swap routing to optimize each worker's route, and suggests using a particular algorithm (two optimum heuristic) to achieve this process. Nevertheless, Kocur is doing nothing more than taking a first ordered listing of scheduled locations (a first trial route created for the worker) and then replacing it

with a second ordered listing of scheduled locations (an alternative and possibly optimized route for that order). At no point does Kocur suggest creating a listing to include locations which the worker is not scheduled to visit.

At this point it is necessary to mention one further improvement available with Kocur's system, simply to avoid any doubt. If one of the workers' routes results in a missed appointment (e.g. a customer requested a morning visit but the optimized route for that worker schedules an afternoon visit instead), then that worker's projects can be pair-swapped with another worker's projects to try to overcome this deficiency in the route. The result of each such pair swapping operation, and the final outcome of the procedure is, however, a set of worker routes or schedules, each of which only contains the projects (and by extension, the locations) which the worker is due to visit.

Accordingly, at no point in the Kocur process does a listing appear with both scheduled and unscheduled locations for an agent prioritized according to the availability of the agent to reach each such location in the listing.

Features missing from both references cannot be remedied even when combined

From the points made above it is respectfully submitted that it is clear that neither Powell nor Kocur makes any suggestion of calculating availability of an agent to reach locations irrespective of whether or not he or she is due to actually visit those locations. Both references are similarly silent on maintaining a listing with an agent's scheduled locations and unscheduled locations, ranked for that agent according to availability to reach each location after a first time at which the agent becomes free.

As a result, even if there were motivation to combine the references in the way in which the Examiner has suggested, each reference lacks certain key features of the claimed invention, and no combination of the references can result in them teaching features on which each reference is silent.

Final rejection's reasoning regarding motivation and combination

As regards motivation and the combination of features from the two references which the Examiner finally suggests, it is not at all clear what argument has been made to support the contention that the skilled person would combine the two

references, or indeed, what features the skilled person would take from each reference in such a suggested combination.

Applicants have diligently tried to understand the conclusions drawn by the Examiner in the context of the arguments made earlier, but have failed to do so. To quote the final rejection:

> *"Both Powell and Kocur are concerned with efficient assignment of mobile workers, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made*
>
> *to include locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent in Powell et al, as seen in Kocur,*
>
> *thus improving the efficiency and robustness of the Powell et al system in determining worker schedules."*

In the second part of this sentence above, the Examiner refers to "said listing", but it is not clear which listing is referred. It appears most likely that the Examiner means the pooled work orders of Powell.

If it can be assumed that this is in fact what the Examiner meant (bearing in mind that this argument involving Kocur was introduced for the first time in the final rejection, so Applicants have not had the opportunity to query this with the Examiner), then the argument appears to be that Powell's pooled work orders ("the listing") would be improved by being prioritized according to Kocur.

However, one knows from the preceding argumentation of the Examiner that the "prioritization" of Kocur is the rearrangement of an ordered list or route using the pair-swap technique.

Therefore, the pooled work order listing in Kocur would (it is apparently argued) be rearranged for increased efficiency as Kocur suggests. This might result in increased efficiency in servicing the pooled work orders, but it most surely does not result in the claimed invention.

Realistic combination of prior art references

Because Applicants have had difficulty in following the precise combination being suggested by the Examiner, it may be useful to the Board to consider how the skilled person would, in fact, combine Powell and Kocur if motivated to do so and momentarily forgetting about the invention currently under appeal.

It is respectfully suggested that a far more realistic combination of Kocur and Powell can be made by taking each reference on its face:

1) Powell is concerned with scheduling a workforce to cover both time-critical service calls and longer-term pooled work assignments.

2) Powell suggests (at paragraphs 0039 and 0040) that an optimization engine is used to create and optimise each worker's schedules from the service assignment listing, being careful not to over-schedule each worker.

3) Kocur provides a complex mechanism for just this task – creating optimal worker schedules, including routing, from an organization's list of work projects.

4) The skilled person, if motivated to combine the two references, will use the Kocur engine to create worker schedules to cover the service assignments in Powell, leaving enough slack time for pooled work orders to be fitted into remaining slack periods.

This would appear to be a reasonable combination argument, and naturally Applicants would argue that it does not lead to the claimed invention. However, Applicants also submit that the question to be considered is: what would have been obvious to one of ordinary skill in the art without having reference to the claimed invention? As such, the above reasoning is suggested as an answer to that question, in preference to the argument developed by the Examiner which cannot be a realistic and true assessment of the skilled person's assessment of the prior art at the filing date.

Claims 4, 5 and 34

In the rejection of claim 1, the prioritized listing of Powell was considered to be the pooled queue 20. In rejecting claims 4 and 34, the individualized prioritized listing for an agent cannot be the pooled queue 20. The associated reasoning given: "workforce member geographic location and associated geographic block, ¶ 0044" is of no assistance in understanding how a queue of pooled orders for an organisation, which contains no indication of where a workforce member might be located, can be seen to be a prioritized listing of scheduled and unscheduled locations for one individual member of a workforce.

Similarly in the rejection of claim 5, the pooled queue 20 cannot fulfill the feature of "a combined prioritized location listing relating to a plurality of agents with each location being prioritized for one or more agents according to the ability of the or each such agent to reach each location after said first time relating to the agent." Again, the accompanying reasoning is of no benefit in assisting one to understand the rejection: "i.e. each workforce member's geographic location and associated geographic block is examined in order to minimize travel time, ¶ 0044", particularly if the listing in question is still the pooled queue 20 for consistency with the claim 1 rejection.

Claim 7

Perhaps in error, the final rejection states (correctly in the view of the Applicants) that Powell et al. does not disclose the steps of claim 7. Claim 7 requires the offering of an order to an agent and the receipt of confirmation of acceptance of the order. The final rejection states that "confirmation is assumed upon delivery of new schedule to workforce member, wherein scheduling assignments are based upon worker preference, ¶ 0040".

Firstly, this rejection mentions only delivery of a new schedule to a worker, not the offer of an individual order, which the agent can accept or refuse.

Secondly, the rejection appears to find the claimed features inherently, which can only be done when the Examiner has established that it is necessarily present, see MPEP 2112, IV. "In relying upon the theory of inherency, the examiner must provide

a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

The Examiner has made a supposition in rejection claim 7 which is not permissible.

Claims 9-13

Claims 9-13 each further define the prioritized listing of locations with various features to be found in the listing. As the final rejection allegedly finds a prioritized listing to be present in Powell's pooled queue 20, the features of claims 9-13 would need to be disclosed in relation to that queue. It is submitted that the Examiner has instead found reference to certain geographic features of the Powell system which are not related to the pooled queue and thus by extension cannot be part of the claimed prioritized listing according to the Examiner's own reasoning.

2) REJECTION UNDER 35 U.S.C. 103 OVER POWELL ET AL. IN VIEW OF KOCUR IN FURTHER VIEW OF SISLEY ET AL

Claims 18-20, 26 and 28

Claims 18-20, 26 and 28 are dependent on either claim 1 or 24, and as such they each benefit from patentability for the same reasons as the base claim from which they depend. Without making any admission as to the content of Sisley et al with respect to the limitations newly recited in claims 18-20, 26 and 28, it is pointed out that Sisley et al do not teach the limitations of the independent claims which are missing from Powell and Kocur.

3) REJECTION UNDER 35 U.S.C. 103 OVER POWELL ET AL. IN VIEW OF KOCUR IN FURTHER VIEW OF DITCHARO ET AL

Claims 21 and 29

The rejection of claims 21 and 29 is built on the foundation of the rejection of claims 1 and 24 (from which claims 21 and 29 respectively depend), and as such, each

of claims 21 and 29 benefits from patentability for the same reasons as the base claim from which it depends. It is pointed out that Ditcharo et al. provides no assistance in supplying the features of the independent claims which are missing from Powell and Kocur.

In addition it is pointed out that claims 21 and 29 require that access is provided to an agent to order the current order record. The Examiner alleges that this feature is taught by Ditcharo and as such it would be obvious to make the suggested combination and to arrive at the claimed subject matter.

In fact Ditcharo teaches no such thing. Ditcharo's system of Fig. 2, relied on by the Examiner, employs a dispatch unit 202 communicating over an access system 203 with a set of access units 204. Technicians are each given an access unit 204, and this unit receives assignment information from the dispatch unit.

The Examiner refers to column 5, lines 16-24 which states that the access units 204 can "retrieve infrastructure information", such as (for a telephone company) the number of lead pairs available to a location, the number of switches and so on. The passage goes on to state that the units may also allow technicians to run tests on the customer's equipment (presumably allowing a telephone technician, for example, to cause the customer's number to be dialled to test a connection, and so on).

From this passage, the rejection states (correctly) that the units have provisions that allow technicians to retrieve information and to run tests. Then the rather ambiguous conclusion is drawn that it would be obvious to "include workforce access to records in Powell, as an efficient means of sharing information within the system, thereby improving overall communications."

At this point the claim limitation of claim 21 needs to be recalled - "wherein the step of maintaining said current order record includes providing access to an agent to said current order record to edit the details recorded therein."

Firslty, Ditcharo does not allow agents to access their current order record (indeed the sentence immediately preceding that quoted by the Examiner even recommends that agents only be sent one order at a time, explicitly teaching away from increasing the information available to each agent). Ditcharo allows technicians

to access infrastructure information only, not their work schedules or current order record.

Secondly, Ditcharo provides no suggestion that agents should be given editorial control over their orders, and the conclusion drawn by the Examiner fails to notice that this is a requirement of the claim, concerning itself only with access to information and increased communications.

Accordingly, it is submitted that Ditcharo fails to make obvious the subject matter of claims 21 and 29.

Therefore, it is submitted that the Examiner's rejections are clearly in error, and should be reversed.

April 9, 2007

Respectfully submitted,

William M. Lee, Jr.
Registration No. 26,935
Barnes & Thornburg LLP
P.O. Box 2786
Chicago, Illinois 60690-2786
(312) 214-4800
Fax (312) 759-5646

CLAIMS APPENDIX

1. A computer-implemented method of allocating a location-related order to one of a plurality of mobile agents, comprising the steps of:

   a) maintaining a current order record identifying a first location and first time at which each agent is expected to become free to fulfill a new order;

   b) maintaining a prioritized listing of locations including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing;

   c) receiving said location-based order and recording the location and time at which said order is to be fulfilled;

   d) determining from said prioritized listing of locations a suitable agent to fulfill said order; and

   e) allocating said order to said suitable agent.

2. A computer-implemented method according to claim 1, wherein step a) comprises maintaining for each agent an individual current order file relating only to that agent.

3. A computer-implemented method according to claim 1, wherein step a) comprises maintaining a combined current order file relating to a plurality of agents, with said first location and first time identified for each such agent.

4. A computer-implemented method according to claim 1, wherein step b)

comprises maintaining for each agent an individual prioritized location listing relating only to that agent.

5. A computer-implemented method according to claim 1, wherein step b) comprises maintaining a combined prioritized location listing relating to a plurality of agents, with each location being prioritized for one or more agents according to ability of the or each such agent to reach each location after said first time relating to the agent.

6. A computer-implemented method according to claim 1, further comprising the step of:

updating the current order record for said identified agent with a new first location and first time at which said agent is expected to become free after fulfilling said order.

7. A computer-implemented method according to claim 1, wherein said step of allocating said order comprises

i) offering said order to said agent; and

ii) receiving confirmation of acceptance of the order from the agent.

8. A computer-implemented method according to claim 1, wherein said current order record identifies locations and times relating to all current orders assigned to said agent.

9. A computer-implemented method according to claim 1, wherein said listing of locations identifies the priority of each location with a time at which the agent is expected to be able to reach said location.

10. A computer-implemented method according to claim 1, wherein said listing of locations identifies the priority of each location with a priority identifier calculated from distance between each such location and said first location,

and time between the current time and said first time.

11. A computer-implemented method according to claim 10, wherein said distance is a true geographical distance.

12. A computer-implemented method according to claim 10, wherein said distance is a distance calculated in a non-linear representation of an area including said locations.

13. A computer-implemented method according to claim 12, wherein said representation is selected from a grid of cells to which locations are mapped, a set of groups of locations, and a mesh of elements to which locations are mapped.

14. A computer-implemented method according to claim 1, wherein said locations are identified as cells within a grid to which locations are mapped

15. A computer-implemented method according to claim 1, wherein said locations are identified as groups of locations within a set of such groups.

16. A computer-implemented method according to claim 1, wherein said locations are identified as elements within a mesh of elements to which locations are mapped.

17. A computer-implemented method according to claim 6, further comprising the step of updating the prioritized listing for said identified agent when said order has been allocated, to take account of said new first location and new first time.

18. A computer-implemented method according to claim 1, wherein said first time is calculated from a journey time file which records expected journey times between locations.

19. A computer-implemented method according to claim 1, wherein said first time is input by an operator based on an expected journey time.

20. A computer-implemented method according to claim 19, wherein said operator is the agent to which the current order record relates.

21. A computer-implemented method according to claim 1, wherein the step of maintaining said current order record includes providing access to an agent to said current order record to edit the details recorded therein.

22. A computer-implemented method according to claim 1, wherein said current order file further includes details of an advance order, including a second location and a second time after said first time, at which said advance order is to be fulfilled, and wherein step d) includes the step of determining whether the agent is expected to be able to finish said new location-based order with sufficient time to fulfill said advance order.

23. A computer-implemented method of operating an ordering server for controlling location-based orders for a plurality of mobile agents, comprising the steps of:

a) maintaining a current order record identifying for each agent a first location and first time at which the agent is expected to become free to fulfill a new order;

b) maintaining a prioritized listing of locations including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing; and

c) updating said current order record and said listing for an agent when a new order has been assigned to said agent resulting in a new first

location and first time being identified.

24. An ordering server for allocating location-based orders to a plurality of mobile agents associated with said server, comprising:

a) a current order file storage area for maintaining a current order file which identifies for each agent a first location and first time at which the agent is expected to become free to fulfill a new order;

b) a location priority listing storage area for maintaining a prioritized listing of locations including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing;

c) an input interface for receiving said location-based order and recording the location and time at which said order is to be fulfilled;

d) a processor for determining from said prioritized listing of locations a suitable agent to fulfill said order; and

e) an output interface for allocating said order to said identified agent.

25. An ordering server according to claim 24, wherein said input interface comprises an operator interface for an operator to input details received from an ordering party.

26. An ordering server according to claim 24, wherein said input interface is selected from a web server hosting a user interface via which ordering parties can input order details, a Wireless Application Protocol (WAP) server hosting a user interface via which ordering parties can input order details, an

Interactive Voice Response (IVR) unit via which a user can input order details and a Short Messaging Service (SMS) gateway for receiving SMS messages containing order details.

27. An ordering server according to claim 24, further comprising a map database correlating real geographical locations with location identifiers for use in identifying locations in said current orders file and said listing.

28. An ordering server according to claim 24, further comprising a journey times calculator for calculating an expected journey time between two locations.

29. An ordering server according to claim 24, further comprising an agent interface for an agent to access and edit said current orders file.

30. An agent profile stored on a computer-readable medium for use in allocating orders to a mobile agent, comprising:

a) a current order file identifying a first location and first time at which the agent is expected to become free to fulfill a new order; and

b) a prioritized listing of locations including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing

31. An agent profile according to claim 30, wherein said current orders file further includes details of all orders currently assigned to said agent.

32. An agent profile according to claim 31, wherein said details include a differentiation between current orders which are to be fulfilled immediately and advance orders.

33. An agent profile according to claim 30, wherein said current orders file relates to a single agent only.

34. An agent profile according to claim 30, wherein said prioritized locations listing relates to a single agent only.

35. A computer program product in machine readable form containing instructions which when executed cause an ordering server to:

a) maintain for each agent a current order record identifying a first location and first time at which the agent is expected to become free to fulfill a new order;

b) maintain for each agent a prioritized listing of locations in the vicinity of said first location including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing;

c) receive said location-based order and recording the location and time at which said order is to be fulfilled;

d) determine from said prioritized listing of locations a suitable agent to fulfill said order; and

e) allocate said order to said identified agent.

36. A communications network comprising an ordering server for allocating location-based orders to a plurality of mobile agents associated with said server, comprising:

a) a current order file storage area for maintaining a current order file which identifies for each agent a first location and first time at which the agent is expected to become free to fulfill a new order;

b) a location priority listing storage area for maintaining a prioritized listing of locations including both scheduled locations which an agent is currently due to visit and unscheduled locations which said agent is not currently due to visit, with locations in said listing being prioritized to rank both the scheduled and unscheduled locations for said agent according to availability of the agent to reach each location after said first time, said availability having been calculated for each location irrespective of whether or not said agent is currently due to visit a particular location in said listing;

c) an input interface for receiving said location-based order and recording the location and time at which said order is to be fulfilled;

d) a processor for determining from said prioritized listing of locations a suitable agent to fulfill said order; and

e) an output interface for allocating said order to said identified agent.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None